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Mekhanizatsiya Stroitel'stva, No 12, 1950.

NEW SOVIET MACHINES TO WORK AS UNIT; SNOWPLOW DOES WELL ON TESTS

MACHINES SPREAD, FINISH CONCRETE ROADS

Mekhanizatsiya Stroitel'stva, Dec 50

During 1950, the Nikolayev Dormashina Plant built and tested a group of machines designed to work together in the construction of concrete roads.

The smallest of these machines, the D-194A, tamps firmly into place the rail forms on which the other machines ride. The operator guides it along one rail at a time, holding onto a pair of handlebars mounted at the rear. Powered by a K-IB motorcycle motor of 2.3-horsepower capacity at 3,903 revolutions per minute, the machine effects its tamping action on the bottom flanges of the rail through a pair of plungers which run off flywheels mounted on opposite sides. The K-lB also lubricates :e inside edges of the rail.

The D-181A spreader picks up its load of concrete from truck or crane in a hinged shovel, and deposits it into a hopper. The hopper, which has a capacity of 1.6 cubic meters, is moved transversely along the frame, spreading out the concrete. As it spreads out these transverse strips, the machine moves forward along the rail, at the rate of 0.79-1.78 meters per second. It is powered by a 40-horsepower U-5MA motor. From front to rear, the D-181A measures 3,582 millimeters; it is 12,100 millimeters broad and 5,925 millimeters high with shovel in raised position. It weighs 9,985 kilograms.

The D-182A finisher follows along behind the D-181A, striking off the concrete surface to the desired level with a vibrating screed, tamping it with a broad plate, and cutting down the unevenness again with the rear screed. Finally, it passes a smoothing strip over the work. The machine is powered by a 40-horse-power U-5MA motor, and moves along the rail forms at 1.86-4.15 meters per minute. The front screed is fitted with five I-7 vibrators, which take their

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current from an APIT-85 three-phase generator having a capacity of 7.5 kilowatts at 1,500 revolutions per minute. The D-182A measures 3,900 x 7,500 x 3,000 millimeters, and has a tread of 7,250 millimeters. It weighs 9,000 kilograms.

The D-195A machine is the last to ride over the paving, catting the seams in it and giving it its final dressing. The cutting is done by two movable metal blades, one mounted on the frame transversly, the other longitudinally. Each is equipped with an I-7 vibrator, both taking power from the generator on the D-182A. Workers standing on the frame operate the cutting blades and put the finishing touches on the concrete, measuring it with special gages, and smoothing it out where necessary with hand tools. The entire machine is moved along the rail forms by hand a little at a time as successive sections of the road are processed.

The last machine of the aggregate is a trailer to be used to transport the above three heavy machines.

Productivity of the machines in cubic meters follows:

	<u>D-181A</u>	D-182A	<u>D-195A</u>
During a 9-10 hr period Road 20 cm deep Average productivity Maximum "	228 240	243 309	120 (8 hr period)
Road 40 cm deep Average productivity Maximum "	254 268	258 314	
During 1 hr			
Road 20 cm deep Optimum performance, no stops Normal performance	30.8 22.9 - 28.2	39.9 25.4-36.0	35.5 14.2
Road 40 cm deep Optimum performance, no stops Normal performance	34.4 19.5-20.4	40.5 18.5-25.4	

PLAN TO PUT OUT NEW SPREADER

Mekhanizatsiya Stroitel'stva, Dec 50

. A new concrete spreader, the D-227, is slated for production in 1951. It will move forward on 1:1 forms, while a pair of endless worm conveyers, connected at the middle of the machine and extending outward to the sides, will pass over piles of concrete previously placed in the middle of the roadbed, and spread them out over it. The machine will move forward at a rate of 1.16-3.82 meters per minute, and should be able to spread out a strip of concrete 500 meters long, 7 meters broad, and 0.20-0.23 meter deep in one shift.

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MACHINE DIGS BEDS FOR CONCRETE ROADS

Mekhanizatsiya Stroitel'stva, Dec 50

The Ministry of Construction- and Road-Machine Building has developed a new roadbed digger, the D-239. Mounted on a heavy frame, it rides along the same rail forms which are later used by the spreading and finishing machines. A milling drum, one meter in diameter, at the front of the machine digs the earth to the required depth and an inclined blade to the rear of the drum picks it up. A conveyer runs along behind this, carrying the earth off to the side of the machine. The machine digs up a 7-meter-broad strip of previously rolled earth to a depth of 20 centimeters below the base of the rail forms. Powered by a 52-horsepower 1-MA motor, it moves along at 1.0-2.0 meters per minute and has a productivity of 60-80 cubic meters of earth per hour. It weighs 9.5 tons.

TEST BITUMEN SPREADER

Mekhanizatsiya Stroitel'stva, Dec 50

Tests were recently run on the D-251 bitumen spreader, designed and built at the Kurgansk Road-Machine Plant. Mounted on a ZIS-150 truck body, it is designed to handle bitumen and tars for repairing and covering secondary roads. The pump is run from the truck engine.

The tank holds 3,600 litres of paving material and sprays the mixture in a band 1-7 meters broad. The mixture is heated by a kerosene burner, via tubes which pass through the bitumen tank.

Although the machine performed satisfactorily on tests, several small changes will be made in its design before it goes into series production.

NEW PLOW PRODUCED IN PLACE OF OLD

Mekhanizatsiya Stroitel'stva, Dec 50

The Shcherbakov Road-Machinery Plant of the Ministry of Construction and Road-Machine Building is substituting the production of the new D-229 snow-plow for that of the older D-151. Mounted on a ZIS-150 truck, the plow is designed for clearing roads covered to a depth of 25-30 centimeters while moving at speeds of up to 30-35 kilometers per hour.

In addition to the main moldboard, mounted forward, there is a smaller one, called a side wing, mounted on the right side of the truck. Both moldboard and side wing are raised and lowered by a hydraulic system which is powered by a D-169 hand pump located in the operator's cab.

Put through tests in 1949 - 1950 the machine performed satisfactorily in clearing automobile roads, and was able to break through drifts of up to 1.2 meters high. At a speed of 30 kilometers per hour, the forward moldboard threw the snow off 2 meters to the side.

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Following are specifications of the plow:

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Clearance width, using moldboardonly (mm)	2,620
and side wing (mm)	4,200
Length of blade, moldboard (mm)	3,200
Height of leading end of moldboard (mm)	600
" " trailing " " (mm)	1,200
Horizontal-plane angle between the line of the road and the moldboard (deg)	55
Vertical-plane angle between the road surface and mold-	45-60
Maximum height to which moldboard can be raised above	
road (mm)	300
Length or side wing (mm)	2,750
Height of leading end of side wing (mm)	500
" " trailing " " " (mm)	700 -
Horizontal-plane angle between side wing and line of	up to 45
vertical plane angle between road surface and side-	30
worth to which side wing can be raised above road (mm)	960
Over-all weight of plow aggregate, exclusive of truck (kg)	1,000
Maximum pressure exerted by hydraulic system (atm)	150
Volume of hydraulic system (1)	6.5

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